Kathmandu University
Department of Electrical and Electronics Engineering
DIGITAL ELECTRONICS LABORATORY EXPERIMENTS

LABWORK : HALF AND FULL ADDERS

Components Required:

- IC 7486
- IC 7408
- IC 7432
- Bread board
- Light Emitting Diode (LED)
- Resistor(1 KΩ)

THEORY:

Half Adder:

- Adds two incoming bits
- No provision for adding carry input from the previous stage
- Follows the rules of binary addition to give the Sum and Carry outputs after adding two bits

Truth Table:

A	B	Sum (S)	Carry (C)
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

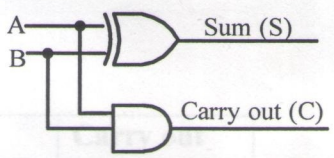

Fig. Half Adder

From the Truth Table

$Sum = A \oplus B$ $\quad Carry = A \bullet B$

Full Adder:

- Adds two incoming bits
- Has provision for adding carry input from the previous stage
- Follows the rules of binary addition to give the Sum and Carry outputs after adding two bits and a carry input.

Truth Table:

Cin	A	B	Sum(S)	Cout
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

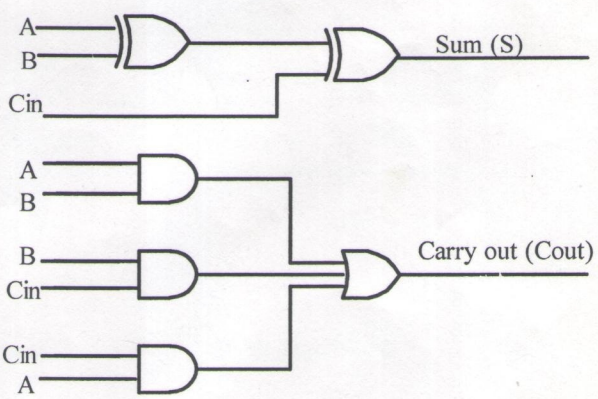

Fig. Full Adder